

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
15 July 2004 (15.07.2004)

PCT

(10) International Publication Number
WO 2004/059081 A1

(51) International Patent Classification⁷: **D21H 21/16**

Cransberry Township, PA 16066 (US). **BAIKOW, Glenn**,
E. [US/US]; 1626 W. Chew St., Allentown, PA 18102
(US).

(21) International Application Number:
PCT/US2003/040272

(22) International Filing Date:
17 December 2003 (17.12.2003)

(74) Agents: **VAN EYL, Diderico et al.**; Bayer Chemicals
Corporation, 100 Bayer Road, Pittsburgh, PA 15205-9741
(US).

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/434,213 17 December 2002 (17.12.2002) US

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR,
CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,
MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,
SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,
UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(71) Applicant (*for all designated States except US*): **BAYER
CHEMICALS CORPORATION** [US/US]; 100 Bayer
Road, Pittsburgh, PA 15205-9741 (US).

(72) Inventors; and

(84) Designated States (*regional*): ARIPO patent (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,
SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(75) Inventors/Applicants (*for US only*): **PAWLOWSKA,**
Lucyna [US/US]; 21 Byrd Road, Norwalk, CT 06850
(US). **DILTS, Kimberly, C.** [US/US]; 14 South Circle,
Beacon Falls, CT 06403 (US). **HUNTER, Charles, R.**
[US/US]; 115 N. Racebrook Road, Woodbridge, CT 6525
(US). **O'TOOLE, Michael, P.** [US/US]; 188 Pleasant
Drive, Cheshire, CT 06410 (US). **PROVERB, Robert, J.**
[US/US]; 306 Rail Tree Hill Road, Woodbury, CT 06798
(US). **LONG, Thomas, T.** [US/US]; 52 Noah's Lane,
Norwalk, CT 06851 (US). **GARRO, Gina** [US/US]; 20
Jackson Drive, Milford, CT 06460 (US). **DAUPLAISE,**
David, L. [US/US]; 108 Mayapple Rd., Stamford,
CT 06903-1307 (US). **KOMAROWSKA, Katarynza**
[US/US]; 53 Essex Dr., Milford, CT 06460 (US). **GOLDS-**
BERRY, Harold, A., III [US/US]; 701 Sir Barton Court,

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: **ALKENYLSUCCINIC ANHYDRIDE SURFACE-APPLIED SYSTEM AND METHOD FOR USING THE SAME**

(57) Abstract: The invention relates to an aqueous sizing composition including: (a) a first component comprising an emulsion having an alkenylsuccinic anhydride component containing alkenylsuccinic anhydride particles and a surfactant component; suspended in water; and (b) a second component selected from the group consisting of cationic starches, non-ionic starches, anionic starches, water, water-soluble polymers, and mixtures thereof; such that the alkenylsuccinic anhydride component and the second component are sufficiently diluted to enable the sizing composition to impart useful sizing properties to a fibrous substrate when the sizing composition contacts the fibrous substrate. The invention also relates to fibrous substrates treated with such a composition as well as processes for making and using the composition. In one embodiment, alkyl ketene dimer is used instead of alkenylsuccinic anhydride.